

WHAT IS CLAIMED IS:

1. A gas pressure driven fluid pump, said pump comprising:

a pump tank having a liquid inlet and a liquid outlet;

a float assembly including a buoyant float carried within the interior of said pump tank, said float being operable to move between a low level position and a high level position;

a compression spring having a first end and a second end, said first end being operatively connected to said float assembly;

a pivot member operatively connected to said second end of said compression spring, said pivot member rotating to a first position when said float reaches said high level position and said pivot member rotating to a second position when said float reaches said low level position; and

a valve assembly connected to said pivot member, said valve assembly being switchable between motive porting and exhaust porting in a snap over fashion due

to rotation of said pivot member between said first position and said second position.

2. The pump as recited in claim 1, further comprising an anchor located at said second end of said compression spring, said anchor having a socket that is engaged by said pivot member.

3. The pump as recited in claim 2, wherein said pivot member has a tip portion engaging said socket of said anchor.

4. The pump as recited in claim 2, wherein at least one wall protrudes from the periphery of said socket so as to prevent lateral disengagement by said tip portion.

5. The pump as recited in claim 3, wherein said tip portion is formed from tungsten carbide.

6. The pump as recited in claim 1, wherein said float assembly includes a pair of float arms pivotally connected to a stationary support structure.

7. The pump as recited in claim 6, further comprising a support member extending from each of said float arms.

8. The pump as recited in claim 6, wherein said compression spring is positioned between said float arms.

9. The pump as recited in claim 1, further comprising a damper system operatively connected to said pivot member.

10. The pump as recited in claim 9, wherein said damper system comprises a plate attached to said pivot member.

11. The pump as recited in claim 1, further comprising a magnet located within said tank.

12. The pump as recited in claim 1, wherein said float is pressurized.

13. The pump as recited in claim 1, wherein said pivot member rotates between said first position and said second position about a fulcrum and said valve assembly has a push rod, said push rod being pivotally connected to said pivot member at a location offset from said fulcrum.

14. The pump as recited in claim 13, further comprising an anchor located at said second end of said compression spring, said pivot member having a tip portion engaging a socket of said anchor.

15. The pump as recited in claim 13, wherein said pivot member is dimensioned such that a first distance is defined between said fulcrum and a distal end of said tip portion of said pivot member is greater than a second distance defined between said fulcrum and the pivotal connection between said push rod and said pivot member.

16. The pump as recited in claim 13, wherein rotational movement of said pivot member causes movement of said push rod about its longitudinal axis.

17. The pump as recited in claim 13, further comprising a guide for controlling the path of said push rod.

18. The pump as recited in claim 1, wherein said valve assembly includes a motive valve connected between said pump tank and a source of motive gas and an exhaust valve connected between said tank and a sink, both said motive valve and said exhaust valve being operatively interconnected such that one will be open while the other is closed.

19. The pump as recited in claim 1, further comprising an upper stop for limiting upward movement

of said float assembly from extending beyond said high level position.

20. The pump as recited in claim 1, further comprising a lower stop for limiting downward movement of said float assembly from extending beyond said low level position.

21. The pump as recited in claim 6, further comprising an anchor located at said first end of said compression spring, said anchor having a socket that is engaged by at least one of said float arms.

22. The pump as recited in claim 21, wherein at least one of said float arms has a tip portion that engages said socket.

23. The pump as recited in claim 22, wherein said tip portion has a radius in the range of approximately 0.030 inches to approximately 0.047 inches.

24. The pump as recited in claim 23, wherein said socket has a radius in the range of approximately 0.047 inches to approximately 0.063 inches.

25. The pump as recited in claim 1, wherein said valve assembly has a valve seat formed from a hardened metallic alloy.

26. A gas pressure driven fluid pump, said pump comprising:

a pump tank having a liquid inlet and a liquid outlet;

a float assembly including a buoyant float carried within the interior of said pump tank, said float assembly being operable to move between a low level position and a high level position;

a valve assembly operatively connected to said float, said valve assembly being switchable between motive porting and exhaust porting in a snap over fashion due to rotation of said float between said high level position and said low level position; and

a damper system operatively connected to said valve assembly, said damper system slowing movement of said valve assembly to said motive porting and said exhaust porting.

27. The pump as recited in claim 26, wherein said damper system comprises a plate configured to create a drag through liquid in said tank.

28. The pump as recited in claim 26, further comprising a magnet located within said tank.

29. A gas pressure driven fluid pump, said pump comprising:

a pump tank having a liquid inlet and a liquid outlet;

means for detecting a low liquid level within said pump tank and a high liquid level within said pump tank;

a valve assembly operatively connected to detecting means, said valve assembly being switchable between motive porting and exhaust porting in a snap over fashion responsive to said detecting means;

a damper system operatively connected to said valve assembly, said damper system slowing movement of said valve assembly to said motive porting and said exhaust porting; and

said valve assembly moving to said motive porting when said detecting means detects a high liquid level within said pump tank and to exhaust porting when said detecting means detects a low liquid level within said pump said such that liquid will be alternately introduced into and discharged from said pump tank.